IN THE CLAIMS:

Although the claims are not amended herein, the claims are reprinted herein for the convenience of the Examiner.

1. (ORIGINAL) A heater apparatus of an ink-jet print head comprising:

a substrate;

a wire/resistance heat emitting body pattern on the substrate and including an electric conductor layer ;

a plurality of wires in the wire/resistance heat emitting body pattern;

a plurality of resistance heat emitting bodies to heat ink in the wire/resistance heat emitting body pattern; and

a protective layer formed on the wire/resistance heat emitting body pattern to protect the wire/resistance heat emitting body pattern,

wherein the wires have a first dopant doped therein by an ion implantation process carried out to regulate an electric resistance of the wires after forming the wire/resistance heat emitting body pattern over the substrate.

2. (ORIGINAL) The heater apparatus of claim 1, wherein the first dopant comprises an ionizable dopant.

3. (ORIGINAL) The heater apparatus of claim 1, wherein the resistance heat emitting bodies include a second dopant doped therein by a negative ion implantation process carried out after the ion implantation process for the wires and the second dopant doped comprises an ionizable dopant.

4. (ORIGINAL) A fabrication method of a heater apparatus of an ink-jet print head comprising:

forming an electric conductor layer over a silicon substrate;

forming a wire/resistance heat emitting body pattern including a plurality of resistance heat emitting bodies and a plurality of wires by patterning the electric conductor layer;

forming a photo resist pattern to mask the resistance heat emitting bodies on the wire/resistance heat emitting body pattern;

regulating an electric resistance of the wires of the wire/resistance heat emitting body pattern comprising performing an ion implantation process using the photo resist pattern as a first ion implantation mask; and

removing the photo resist pattern.

5. (ORIGINAL) The method of claim 4, wherein the performing of the ion implantation process comprises doping an ionizable dopant in the wires.

6. (ORIGINAL) The method of claim 5, further comprising annealing the silicon substrate at a temperature of more than 200°C.

7. (ORIGINAL) The method of claim 4, further comprising:

regulating an electric resistance of the resistance heat emitting bodies by performing a negative ion implantation process using the photo resist pattern as a second ion implantation mask, wherein the performing of the negative ion implantation process comprises:

doping an ionizable dopant
in the resistance heat emitting bodies, and

controlling an ion implantation energy so that the dopant reaches
the resistance heat emitting bodies disposed under the photo resist pattern.

8. (ORIGINAL) A heater apparatus of an ink-jet print head comprising:

a substrate;

a wire/resistance heat emitting body pattern on the substrate and including an electric conductor layer;

a plurality of wires in the wire/resistance heat emitting body pattern;

a plurality of resistance heat emitting bodies to heat ink in the wire/resistance heat emitting body pattern; and

a protective layer formed on the wire/resistance heat emitting body pattern to protect the wire/resistance heat emitting body pattern,

wherein the resistance heat emitting bodies have a dopant doped therein by an ion implantation process carried out to regulate an electric resistance of the resistance heat emitting bodies after forming the wire/resistance heat emitting body pattern over the substrate.

9. (ORIGINAL) The heater apparatus of claim 8, wherein the dopant comprises an ionizable dopants.

10. (ORIGINAL) A fabrication method of a heater apparatus of an ink-jet print head comprising:

forming an electric conductor layer over a silicon substrate;

forming a wire/resistance heat emitting body pattern including a plurality of resistance heat emitting bodies and a plurality of wires by patterning the electric conductor layer;

forming a photo resist pattern to open the resistance heat emitting bodies on the wire/resistance heat emitting body pattern;

regulating an electric resistance of the resistance heat emitting bodies of the wire/resistance heat emitting body pattern comprising performing an ion implantation process using the photo resist pattern as an ion implantation mask; and

removing the photo resist pattern.

11. (ORIGINAL) The method of claim 10, wherein the performing of the ion implantation process comprises doping of an ionizable dopant in the resistance heat emitting bodies.

12. (ORIGINAL) The method of claim 11, further comprising annealing the silicon substrate at a temperature of more than 200°C.

13. (ORIGINAL) A heater apparatus of an ink-jet print head comprising:

a substrate;

a resistance heat emitting body pattern formed over the substrate and including a plurality of resistance heat emitting bodies to heat ink;

a wire pattern formed on the resistance heat emitting body pattern and having a plurality of wires; and

a protective layer formed on the resistance heat emitting body pattern and the wire pattern to protect the resistance heat emitting body pattern and the wire pattern,

wherein the resistance heat emitting bodies have a dopant doped therein by an ion implantation process carried out to regulate an electric resistance of the resistance heat emitting bodies after forming the resistance heat emitting body pattern and the wire pattern over the substrate.

14. (ORIGINAL) The heater apparatus of claim 13, wherein the wires do not have the dopant doped therein during the ion implantation process and the dopant is an ionizable dopant.

15. (ORIGINAL) The heater apparatus of claim 13, wherein the wires have the dopant doped therein during the ion implantation process for the resistance heat emitting bodies, a total thickness of the resistance heat emitting body pattern and the wire pattern is 500Å, the wire pattern is thick enough so that the dopant does not affect an electric resistance of the wires and the heat emitting body pattern is thin enough so that the dopant regulates an electric resistance of the resistance heat emitting bodies and the dopant is an ionizable dopant.

16. (ORIGINAL) A fabrication method of a heater apparatus of an ink-jet print head comprising:

forming a resistance heat emitting body layer over a silicon substrate;

forming a wire layer on the resistance heat emitting body layer;

forming a wire pattern by patterning the wire layer;

forming a resistance heat emitting body pattern by patterning the resistance heat emitting body layer; and

doping the resistance heat emitting body pattern including a plurality of heat emitting bodies over the silicon substrate over which the resistance heat emitting body pattern and the wire pattern are formed.

17. (ORIGINAL) The method of claim 16, wherein the doping comprises:

forming a photo resist over the silicon substrate over which the wire pattern and the resistance heat emitting body pattern are formed;

forming a photo resist pattern for opening the resistance heat emitting bodies by exposing the photo resist to light and developing the exposed photo resist through a photolithography process;

performing an ion implantation process by using the photo resist pattern as an ion implantation mask and doping an ionizable dopant into the resistance heat emitting body pattern; and

removing the photo resist pattern.

18. (ORIGINAL) The method of claim 16, wherein the doping comprises:

performing an ion implantation process without using an ion implantation mask to allow an ionizable dopant to be doped into the wire pattern.

19. (ORIGINAL) The method of claim 16, further comprising annealing the silicon substrate at a temperature of more than.

20. (ORIGINAL) A heater apparatus of an ink-jet print head comprising:

a substrate;

a resistance heat emitting body pattern formed over the substrate and including a plurality of resistance heat emitting bodies to heat ink;

a plurality of switching elements;

a wire pattern formed on the resistance heat emitting body pattern and including a plurality of wires connecting the switching elements; and

a protective layer formed on the resistance heat emitting body pattern and the wire pattern to protect the resistance heat emitting body pattern and the wire pattern, wherein the resistance heat emitting bodies have a dopant doped therein by an ion implantation process carried out to regulate an electric resistance of the resistance heat emitting bodies after forming the protective layer on the resistance heat emitting body pattern and the wire pattern.

21. (ORIGINAL) The heater apparatus of claim 20, wherein the wires do not have the dopant doped therein by using a photo resist pattern formed through a photolithography process as an ion implantation mask to mask the wires during the ion implantation process for the resistance heat emitting bodies.

22. (ORIGINAL) The heater apparatus of claim 21, wherein the dopant is an ionizable dopant.

23. (ORIGINAL) The heater apparatus of claim 20, wherein the dopant is doped in the wires during the ion implantation process.

24. (ORIGINAL) The heater apparatus of claim 23, wherein a total thickness of the resistance heat emitting body pattern and the wire pattern is 500Å, the wire pattern is thick enough so that the dopant doped during the ion implantation process does not affect an electric resistance of the wires and the resistance heat emitting body pattern is thin enough so that the dopant doped during the ion implantation process regulates the electric resistance of the resistance heat emitting bodies.

25. (ORIGINAL) The heater apparatus of claim 24, wherein the dopant is an ionizable dopant.

26. (ORIGINAL) A heater apparatus of an ink-jet print head comprising:

a substrate;

a plurality of switching elements;

a wire/resistance heat emitting body pattern formed of an electric conductor layer over the substrate and having a plurality of resistance heat emitting bodies to heat ink and a plurality of wires connecting the switching elements;

and a protective layer formed on the wire/resistance heat emitting body pattern to protect the wire/resistance heat emitting body pattern,

wherein the resistance heat emitting bodies have a dopant doped therein by an ion implantation process carried out by using a photo resist pattern formed through a photolithography process as an ion implantation mask to regulate an electric resistance of the resistance heat emitting bodies.

27. (ORIGINAL) The heater apparatus of claim 26, wherein the wires do not have the dopant doped therein by being masked through the photo resist pattern used as the ion implantation mask during the ion implantation process for the resistance heat emitting bodies.

28. (ORIGINAL) The heater apparatus of claim 26, wherein the dopant is an ionizable dopant.

29. (ORIGINAL) A fabrication method of a heater apparatus of an ink-jet print head comprising:

forming a resistance heat emitting body layer including a plurality of resistance heat emitting bodies over a silicon substrate;

forming a wire layer on the resistance heat emitting body layer;

forming a wire pattern by patterning the wire layer;

forming a resistance heat emitting body pattern by patterning the resistance heat emitting body layer;

forming a protective layer over a whole surface of the silicon substrate over which the resistance heat emitting body pattern is formed; and

doping the resistance heat emitting body pattern over the silicon substrate .

30. (ORIGINAL) The method of claim 29, wherein the doping comprises:

forming a photo resist on the protective layer;

forming a photo resist pattern to open the resistance heat emitting bodies by exposing the photo resist to light and then developing the exposed photo resist through a photolithography process;

performing an ion implantation process by using the photo resist pattern as an ion implantation mask; and

removing the photo resist pattern.

31. (ORIGINAL) The method of claim 30, wherein the performing of the ion implantation process comprises using an ionizable dopant.

32. (ORIGINAL) The method of claim 30, wherein the removing of the photo resist pattern comprises ashing and cleaning.

33. (ORIGINAL) The method of claim 29, wherein the doping of the resistance heat emitting body pattern comprises performing an ion implantation process without using an ion implantation mask to allow a dopant to be doped into the wire pattern.

34. (ORIGINAL) The method of claim 33, wherein the ion implantation process comprises using an ionizable dopant.

35. (ORIGINAL) The method of claim 29, further comprising annealing the silicon substrate at a temperature of more than 200°C, after the doping of the resistance heat emitting body pattern.

36. (ORIGINAL) A fabrication method of a heater apparatus of an ink-jet print head comprising:

forming an electric conductor layer over a silicon substrate;

forming a wire/resistance heat emitting body pattern including a plurality of wire/resistance heat emitting bodies by patterning the electric conductor layer;

forming a protective layer over the silicon substrate over which the wire/resistance heat emitting body pattern is formed;

forming a photo resist pattern to open the wire/resistance heat emitting bodies on the protective layer;

forming the wire/resistance heat emitting bodies in the wire/resistance heat emitting body pattern comprising performing an ion implantation process using the photo resist pattern as an ion implantation mask; and

removing the photo resist pattern.

37. (ORIGINAL) The method of claim 36, wherein the forming of the photo resist pattern comprises:

forming a photo resist on the protective layer; and

exposing the photo resist to light and developing the exposed photo resist through a photolithography process using a photolithography mask including a pattern of the wire/resistance heat emitting bodies.

38. (ORIGINAL) The method of claim 36, wherein the ion implantation process comprises using an ionizable dopant.

39. (ORIGINAL) The method of claim 36, wherein the removing of the photo resist pattern comprises ashing and cleaning.

40. (ORIGINAL) The method of claim 36, further comprising annealing the silicon substrate at a temperature of more than 200°C.